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ABSTRACT

The Texas Educational Assessment of Minimum Skills (TEAMS) was developed by the Texas Education Agency (TEA), in response to Texas House Bill 72 (1984), which mandated a new basic skills assessment program for mathematics, reading, and writing at grades 1, 3, 5, 7, 9 and 11. This is one in a series of Instructional Strategies Guides designed to familiarize Texas educators with the types of strategies employed in assessing learner mastery of TEAMS objectives and to provide suggested instructional activities that can be used to promote mastery of those objectives. This guide focuses on the TEAMS reading objectives for grade 5. It provides detailed description of the test items used to measure each reading objective. The nine objectives are subsumed under five skill areas: (1) main idea; (2) word meaning (contextual analysis); (3) detail (specifics, sequence); (4) inference (drawing conclusions, fact and opinion, cause and effect); and (5) reference usage (identifying parts of a book, using graphic aids). The folowing information is provided for each objective: (1) a description of the objective; (2) a sample item; (3) test questions; (4) answer choices; (5) answer analysis for the sample item; (6) instructional emphases; and (7) possible instructional activities. (JAZ)

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INSTRUCTIONAL STRATEGIES GUIDE

READING

GRADE 5

TEXAS EDUCATION AGENCY
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1701 North Congress Avenue
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TEAMS INSTRUCTIONAL STRATEGIES GUIDE

READING

GRADE 5

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INTRODUCTION

During 1980-1985 the Texas Education Agency (TEA) administered a criterion-referenced testing program, the Texas Assessment of Basic Skills (TABS). That program was designed to measure minimum skills in mathematics, reading, and writing at Grades 3, 5, and 9. In July 1984, under the provisions of House Bill 72, a new basic skills assessment program was mandated in mathematics, reading, and writing at Grades 1, 3, 5, 7, 9, and 11. In response, development of the Texas Educational Assessment of Minimum Skills (TEAMS) was instituted by TEA during the 1985-1986 school year.

School district personnel from across Texas participated in all aspects of the development of TEAMS. Basic skills objectives were selected after a thorough review of the State Board of Education Rules for Curriculum, GE4 450 01 (Essential Elements). Under TEA supervision measurement specifications and test items were developed for each objective. Statewide field testing was conducted to ensure the quality of test items. The State Board of Education then approved the TEAMS tests for administration.

Because of the significance of the TEAMS program, TEA is providing Texas educators with instructional strategies guides for all objectives measured on each TEAMS examination. These guides describe the TEAMS objectives as well as instructional considerations and activities that can be used to promote mastery of TEAMS objectives.

This instructional strategies guide focuses on the TEAMS reading objectives for Grade 5. It provides a detailed description of the test items used to measure each reading objective. In addition, a brief instructional analysis is provided for each objective as are instructional activities that can help students master the objective.

Texas educators will undoubtedly vary in the ways they wish to promote learner mastery of the TEAMS objectives. Thus, the instructional components of this guide are <u>not</u> intended to be prescriptive. Teachers should view suggested activities as potential approaches that lead to mastery of the TEAMS objectives.

<u>Components of the Instructional Strategies Guide</u>

Nine TEAMS reading objectives are measured at the fifth grade level. These objectives are subsumed under one of five skill areas. The distribution of reading objectives by skill area is shown on the next page.

SKILL AREA	OBJECTIVE
Main Idea	Main Idea
Word Meaning	Contextual Analysis
Detail	Specifics Sequence
Inference	Drawing Conclusions Fact and Opinion Cause and Effect
Reference Usage	Identifying Parts of a Book Using Graphic Aids

This guide provides the following information for each of the reading objectives included in the TEAMS Grade 5 test.

Description of the objective. This section provides a succinct overview of the objective's focus.

Sample item. An illustrative sample item follows the description of each objective. This item is consistent with the test specifications for the objective, hence is representative of the TEAMS items used to measure students' mastery of the objective.

Test questions. To provide a more detailed view of how each TEAMS objective is assessed, the next section provides a description of the test question. All of the Grade 5 reading items present a stimulus that precedes four answer choices.

Answer choices. The next section deals with the response to each multiple-choice test item. Important characteristics of answer choices are described.

Answer analysis for sample item. An analysis of the answer choices from the sample item is then provided. This analysis explains why the correct answer is right and why the incorrect answers are wrong.

Instructional emphases. Considerations relevant to the design of instructional sequences for each TEAMS objective are described in this section. These instructional analyses are not intended to represent the only important points associated with instruction aimed at a particular objective. However, it is hoped that these discussions will stimulate educators' consideration of each objective.

Possible instructional activities. A final section discusses several instructional activities for each objective that Texas educators may wish to consider as they organize their instructional plans.

Use of the Instructional Strategies Guide

This TEAMS instructional strategies guide is designed to accomplish two goals. First, the guide enables Texas educators to become familiar with the types of strategies employed to assess learner mastery of the TEAMS Grade 5 reading objectives. Educators who wish to learn more about how the TEAMS objectives are tested should consult the TEAMS objectives and measurement specifications available at cost from TEA. The level of detail provided in this instructional strategies guide should provide sufficient information for educators to design effective instructional sequences. Second, each instructional strategies guide provides suggestions for instructional strategies that can be used to promote mastery of TEAMS objectives.

The specific setting in which a given district chooses to provide instruction in the TEAMS objectives will influence the way in which the materials in this guide can be employed. The format of the guide permits flexible use.

General Nature of the Test Items

The TEAMS fifth grade reading objectives are measured by multiple choice items that consist of a stimulus followed by four answer choices, one of which is correct. The stimulus, depending on the objective, is a question, a sentence, or a display or reading selection followed by a question. Reading selections are similar to those that students encounter in school, at home, or in their community. The selections include narratives, fiction, and passages from the content areas. They range from 60 to 300 words in length and are written at approximately a fifth grade reading level. Each reading selection is used as a stimulus for more than one item and is used to test more than one objective.

SKILL AREA: MAIN IDEA

Objective 1: Identify the main idea.

This objective requires students to select the best statement of a reading selection's main idea.

Sample Item

Read the following passage. Then answer the question.

Every summer, thousands of white whales go on vacation. These whales live in the area around the North Pole. A thick layer of fat keeps them warm in the extremely cold water. During the winter, they move around in large, open parts of the Arctic Sea. When summer arrives, each group of whales goes to its favorite vacation spot. The places where rivers meet the sea are popular. The water temperature there is warmer than it is farther out in the ocean.

The whales have their babies in these warm waters. The babies don't have very much fat under their skin when they are born. The warmer water helps them to stay alive. The babies are also safer in these protected areas than out at sea. Fast killer whales prey on the slow, fat white whales out at sea. The killer whales, however, rarely enter the white whales' summer areas.

The white whales also molt during their vacation. They rub themselves on the bottom of the river. They splash in the shallow water, playing and making whale sounds together. Sometimes they roll around on pebble beaches, but this can be dangerous. Three whales were once stranded on a beach because the water had become too shallow. The trapped whales screamed and splashed because they were terrified. Without help, they probably would have died. Some people kept the whales' skin and eyes wet until the high tide came. Then the whales swam back to the deeper water. There, the other whales greeted them happily.

When summer vacation is over, the whales' dirty skin has become clean and white. They look shiny and beautiful as they return to their winter world.

What is the main idea of the passage?

A. White whales prey on killer whales out at sea.

B. Adult white whales teach their baby whales how to protect themselves.

C. Most types of sea mammals swim to warm water during the summer months.

D. Every summer white whales have babies and molt in warmer water.

Test Questions

1. A test item will present a reading selection that communicates a single, central idea that is explicitly stated in one sentence or is implied in the selection as a whole. This selection will be followed by a question or incomplete sentence that requires students to identify the selection's main idea.

2. The reading selection will be used to test other objectives in addition to this one. That is, reading selections will be followed by test questions measuring different objectives.

Answer Choices

1. The correct answer choice will be a statement that is accurate, relevant, and of the most appropriate scope in relation to the other answer choices. For a selection in which the main idea is explicitly stated in one sentence, the correct answer will be a paraphrase of the main idea sentence from the selection. For a selection in which the main idea is implied, the correct answer will represent that implied main idea.

2. Incorrect answer choices will be any of the following types:

   a. Contradicted: A statement that is contradicted by information in the selection.

   b. Inappropriate in Scope: A statement that is (1) too narrow, hence, does not account for all the important information in the selection, or (2) too broad, hence, accounts for a more general viewpoint than is presented in the selection.

   c. Irrelevant: A statement that introduces information not included in the selection. The statement must contain at least one concept from the selection.

Answer Analysis for Sample Item

1. Answer choice A is contradicted by information presented in the reading selection. The fifth sentence of the second paragraph states that killer whales prey on white whales. This answer choice reverses that relationship and, thus, is inaccurate.

2. Answer choice B is irrelevant because it introduces information not included in the selection. There is no information in the selection about adult whales teaching their baby whales to protect themselves.

3. Answer choice C is inappropriate in scope because it is too broad. It goes beyond the information presented in the selection. The selection as a whole deals only with what white whales do during the summer, not with the actions of other types of sea mammals.

4. Answer choice D is a correct statement of the main idea of the selection because it is accurate, relevant, and of appropriate scope. It is an implied main idea statement because it coalesces the important information presented in the selection. No single sentence in the selection provides such a summary. The first paragraph states that the whales go to areas of warmer water every summer. The second and third paragraphs describe the whales' activities at these areas, specifically, having babies and molting. The last paragraph provides more details about molting and concludes the selection. All of this important information is summarized in answer choice D, which effectively states the main idea of the selection by synthesizing its content into a single sentence.

Instructional Emphases

To comprehend what they read, students must be able to recognize the central idea or message expressed in a reading selection. Thus, the ability to recognize the main idea is an essential reading skill. On the third grade TEAMS examination, students were only required to select the best statement (restated or paraphrased) of the main idea of a passage in which the main idea was explicitly stated in a single sentence. At this and subsequent grade levels, TEAMS main idea items require students to discern the main idea of a reading selection in which the main idea is either explicitly stated in one sentence or implied by the selection as a whole.

There are three specific subskills that students must possess to identify a reading selection's main idea. First, students must be able to differentiate between a detail (a specific piece of information) and a main idea (a central idea or general theme). Thus, students must have some understanding of

scope, or the different levels of specificity that distinguish details from the main idea. When students are asked to select the best statement of a selection's main idea, they should be especially careful not to choose a statement that corresponds only to one detail presented in the selection. This is a common error. Second, students must be able to recognize paraphrased information. In TEAMS items in which the main idea is explicitly stated, the correct answer will be a paraphrase of that statement. Students need to see that any idea can be expressed in several ways by using synonyms and modifying word order. Finally, students must be able to identify a unifying theme among numerous related details. This is necessary in TEAMS items in which the main idea is not directly stated, but is implied. In such instances, the main idea is the unifying theme that links all the important pieces of information together.

In trying to determine the main idea of a selection, students should understand that the first sentence of the selection is not always a main idea statement of that selection. To determine the main idea of a selection, students need to read through the entire selection to gain a general understanding of what it is about.

In addition to the activities described below, you may wish to integrate main idea skills into other student activities, such as the reading of announcements or of articles in the school newspaper. For example, after reading an announcement to students, you might ask them to describe the main idea of the announcement that was read.

Possible Instructional Activities

Pieces and Pies

Have students read short passages in which the main idea is explicitly stated in a single sentence. Give each student several pieces of paper cut out in the shapes of circles and triangular wedges (like pieces of pie). Tell students that in this activity they should think of details as pieces of a pie and the main idea as the whole pie. For each passage, have students copy sentences that contain details onto the wedge-shaped slips of paper. Similarly, they should copy the main idea sentence onto a circular piece of paper. Ask students to share with the class how they classified the sentences.

Got the Idea?

Have students form groups of five. One student in each group is "It" and must guess the main idea created by the other four students. The four students together generate a main idea. (For example, "There are many interesting animals at the zoo.") Each of the four students then states aloud a sentence containing

a detail to support the main idea. After hearing each of the four detail sentences, the student who is "It" tries to identify the main idea.

Trying on Titles

Have students read short passages in which the main idea is either explicitly stated or implied. Present a set of four possible titles for each passage. One title should accurately express the main idea of the passage. The other titles should be inaccurate titles patterned after incorrect answer types for TEAMS main idea items (contradicted, inappropriate in scope, irrelevant). Ask students to select from among the choices the title that best expresses what the passage is about. Discuss with students why each title is correct or incorrect.

Pairs of Phrases

In this activity, students (1) write paraphrases of statements and (2) match paraphrased statements with original statements.

To prepare, write a number of general statements on tag strips, one statement per strip. It is not necessary for every strip to contain a different statement, but try to include a diverse range of statements that vary in complexity. Distribute the strips to students--three to a person. Then give each student three blank tag strips. After discussing with students various ways to paraphrase a sentence, direct students to write a paraphrase for each of the sentences they have received on one of the blank tag strips. Remind students that the correct answer choice in a TEAMS main idea item may be a paraphrase of the main idea sentence in the reading selection. Collect and review the students' tag strips to see that students are actually rewording the statements without changing their meaning.

Group the pairs of statements (that is, your original and a student's paraphrase) by difficulty and then divide your students by ability into small groups. Give each group a set of statement pairs appropriate to the abilities of the students in the group. Students are to match statements that express the same idea. When students have finished, discuss the results. Have students read their matched statements and see if other students agree that the statements express the same meaning. Ask if students can suggest still other ways to express the same idea.

Telephone

This activity is a variation of the game in which students pass a message from one person to the next down a line. Have students form groups of six to eight. Give one student in each group a slip of paper containing a fairly lengthy sentence. (For

example, "Before jogging or swimming, people should spend five to ten minutes stretching to warm up their muscles.") This student should write a paraphrase of the original sentence and pass the paraphrase to the second student. The second student should read the sentence, write a new paraphrase, and pass the new paraphrase to the third student. After all students have written a sentence, read the original sentence and the final sentence. Compare the sentences in a class discussion.

SKILL AREA: WORD MEANING

Objective 2: Use context to understand the meaning of words.

This objective requires students to identify a correct definition of an unfamiliar word by analyzing the context in which the word appears.

Sample Item

Choose the word or group of words that tells the meaning of the underlined word used in the sentence.

> I didn't know the answer, and unfortunately my conjecture turned out to be wrong.

A. correct reply

B. building

C. diet

D. guess

Test Questions

1. A test item will consist of a boxed sentence containing an underlined word whose meaning can be determined by analyzing the context in which the word is presented.

2. The sentence containing the underlined word will provide clear context clues for determining the meaning of the word in question. The context clues provided may be synonyms, antonyms, or situations that clarify the meaning of the underlined word.

3. The underlined word will be a word not likely to be familiar to fifth grade students. All the other words in the sentence, other than proper nouns, will be terms that appear in fifth grade reading texts and are, therefore, familiar to students in the fifth grade.

4. The underlined word may have multiple meanings.

Answer Choices

1. The correct answer choice will be an accurate definition of the underlined word as used in the sentence.

2. Incorrect answer choices will be any of the following types:

   a. Contradicted: A definition that is opposite in meaning from the actual definition of the underlined word.

   b. Similar: A definition of a word that is similar in spelling to the underlined word.

   c. Incomplete: A definition that does not account for enough of the sentence's information relevant to understanding the meaning of the underlined word.

   d. Irrelevant: A plausible but incorrect definition of the underlined word.

Answer Analysis for Sample Item

1. Answer choice A is contradicted by the context. Therefore, it is incorrect even though it fits syntactically into the sentence (as do all the answer choices). The sentence states that the speaker did not know the answer and that the conjecture was wrong.

2. Answer choice B is incorrect. It is the definition of a word that is similar in spelling to "conjecture," but it is not supported by the context of the sentence. "Building" defines the word "construction."

3. Answer choice C is incorrect because it is irrelevant. A "diet" has nothing to do with the context of the sentence.

4. Answer choice D is correct. It is a definition of "conjecture" that is supported by the sentence's context. The speaker states, "I didn't know the answer," but the sentence suggests that a response was given. Thus, the context suggests that the speaker had to have made a guess.

Instructional Emphases

Vocabulary development plays a central role in the educational process. As students sharpen their skills and enter new realms of knowledge, they will be exposed to many unfamiliar words. An important technique for unlocking the meaning of unfamiliar words when reading is to use context clues provided in a reading selection.

Context clues are words or phrases that help the reader determine the meaning of an unfamiliar word. Common context

clues include synonyms, antonyms, and phrases containing them. For example:

> I did not have to pay for beverages because all drinks were free.

It is clear from the structure of the sentence above that "drinks" is a synonym of "beverages." A reader unfamiliar with the word "beverages" could use this context clue to determine its meaning.

The recognition of opposites or contrasts in a sentence often yields clues to a word's meaning. For example:

> Joan thought the homework assignment was easy; however, Leslie thought it was quite arduous.

For a reader unfamiliar with the word "arduous," the antonym "easy" in this sentence provides a good clue as to its meaning.

Students must be able to recognize synonyms and antonyms as context clues for unfamiliar words as demonstrated in the above examples. A synonym has no value as a context clue unless the reader recognizes it as such. Therefore, students need to pay attention to sentence structure when looking for context clues.

Linking words often suggest when synonyms or antonyms are present in a sentence. Terms such as "and," "or," and "such as" can indicate the presence of synonyms. For example:

> Acrylics and other types of paint were available in the artist's studio.
> (acrylic = paint)

> Many authors use a pseudonym, or a false name.
> (pseudonym = false name)

> The quilt had small squares of many beautiful colors such as indigo and violet.
> (indigo = a color)

Words like "but," "however," and "unlike" often mean that a sentence contains contrasting or opposite ideas. This is demonstrated in the example above in the sentence about homework. The example below contains "unlike," which signals the reader that the sentence contains contrasting ideas.

> Unlike Jack, who could not begin to understand Kevin's situation, Michael felt empathy for Kevin.
> (empathy = an understanding of the experience of others)

In addition to synonyms and antonyms, context clues can also be provided by words or phrases that describe a situation that, in turn, clarifies the meaning of an unfamiliar word. For

example:

> Because of the possibility of losing his savings, he was very apprehensive.

A reader unfamiliar with the word "apprehensive" could infer from the situation described in the sentence above that it means fearful.

Synonyms, antonyms, and clarifying situations will all be used as context clues in TEAMS items for this objective. Go over with your students the examples presented here as well as others. Encourage students to try in their daily reading to grasp the meanings of new words by attending to any context clues that might be available. In addition, indicate that words that have multiple meanings may be used in the TEAMS items testing this objective. In such items more than one answer choice may be a correct definition of the underlined word. Therefore, it is necessary to pay attention to the context of the sentence to be able to select the definition that is most appropriate given the context.

Possible Instructional Activities

In Your Own Backyard

Content-area textbooks and various reference sources frequently contain sentences or paragraphs with context clues for key terms. Collect several examples of this to show to students. Have students discuss the types of context clues (see Instructional Emphases section) contained in these examples and determine the meanings of the words. Then tell students to find three other examples of context clues in their textbooks. The next day have students read aloud some of the examples they have found. Discuss these examples.

Setting Limits

This activity reinforces a student's ability to use context clues by demonstrating both how much and how little information context clues can provide. Preparation for this activity consists of making a series of fill-in-the-blank sentences. In the series of sentences, the blanks to be filled in must be limited increasingly by the sentence's context. For example, you may begin by reading the following sentence to students:

I saw a _____.

Ask students to think of as many words as possible that could appear in the blank. Call on students to read some of their selected words aloud. Write these on the board. Ask students to name some words that could not be used to fill in the

blank correctly. With your guidance, students should be able to conclude that many nouns fit grammatically into the sentence.

Now have students repeat the exercise with the following sentence:

I saw a _____ with long legs.

Now the blank can no longer contain a noun representing things without legs, such as "painting" or "diamond." Once again, write some student selections on the board. Discuss the limiting factors in the sentence. Ask students to identify words from the previous list that no longer fit in the blank.

Continue this process making each successive sentence more limiting than the last. The next sentence could be:

I saw a _____ with eight long legs.

The blank can no longer contain words such as "person" or "giraffe." Words that still make sense include "table," "spider," and "bed stand."

The next sentence removes all doubt:

I saw a _____ with eight long, delicate legs spinning a web in the garden.

The missing word is, of course, "spider." Although TEAMS items contain unfamiliar words rather than blanks, the process of using context clues is the same. After working through a number of examples such as the one above, students will begin to understand how context clues can be used to determine the meaning of an unfamiliar word.

Deft with Definitions

In this activity, by working with words that have multiple meanings, students see how context affects the meaning of words. Compile a list of 10 words, each of which has at least three clearly distinct meanings. (Examples of possible words include "charge," "fly," and "key.") Write a sentence using each of these words. Each sentence should contain context clues about the intended meaning of the word. For each sentence write at least three answer choices. All answer choices should be valid definitions of the underlined word, but only one should be supported by the context of the sentence.

Give a copy of the sentences and answer choices to each student. Instruct students to select the appropriate definition for each term based on the context provided in the sentence. Remind students that because all the listed definitions are valid, the correct answer depends on analyzing context rather than recognizing a word. Instruct students that after they

select their answers they should choose one of the incorrect answer choices and write a sentence in which this alternate definition of the underlined word is used.

Collect and evaluate student papers. Discuss the context clues contained in each sentence.

Definition Match

In this activity, students match definitions with nonsense words presented in sentences. Produce a work sheet with two columns. In one column write 10 sentences, each containing an underlined nonsense word whose meaning can be determined through the use of context clues provided in the sentence. In the other column write synonyms or phrases that define the underlined nonsense words as they are used in the sentences. The definitions should not be in the same order as the underlined words, and you may want to include extra definitions to make the task more difficult. Number the definitions.

Give the work sheet to students and ask them to match each underlined word with the appropriate definition by writing the number of the definition next to the sentence containing the word. Explain that students are not expected to know the meaning of the underlined word on sight and that, therefore, the meaning of the word must be determined by relying on the context clues provided in the sentence. When students finish, discuss their work. For each sentence focus on how context clues helped in determining the meaning of the nonsense word.

In the Pocket

In this activity, students work independently to hone their skills at contextual analysis. Make at least five reusable pocket charts from cardboard. To make the pocket charts, fold a sheet of cardboard in half. Make a pocket on the right side that will hold as many as 10 index cards. On the left side, make at least four pockets. Each pocket on the left side will have a different word or brief phrase written on it. These words or phrases will serve as potential definitions for nonsense words used in sentences.

Prepare 10 index cards per pocket chart. The cards for a particular pocket chart will need to have the following characteristics. Each card should contain a sentence with an underlined nonsense word. At least five of the sentences should contain sufficient context clues to match a sentence card with a definition pocket. The remaining cards should have insufficient context clues or nonsense words whose probable meanings do not match a definition on a pocket.

Students match nonsense words on sentence cards to the pocket that has an appropriate definition for the nonsense word.

Students then insert the card into the appropriate definition pocket. Some pocket definitions may correctly define the nonsense word on more than one sentence card. Thus, some pockets may eventually contain more than one sentence card. Students work with these cards independently at their desks or in a class learning center. You may also choose to divide students into small groups to work with a pocket chart.

Mystery Box

This is an activity designed to familiarize students with the concepts of synonyms and antonyms. As mentioned in the Instructional Emphases section, synonyms and antonyms are often used as context clues. Thus, in determining the meaning of an unfamiliar word, students will often need to recognize synonyms or antonyms of other words in the sentence.

Create a "Mystery Box" by cutting a hole out of one side of a box and covering the hole with a cloth. Then place an object in the box and select a student to feel the object and describe it. For each descriptive word provided by the student, ask other students to suggest synonyms and antonyms. Try to develop a list of synonyms and antonyms on the board. This will challenge students not to repeat themselves and also show them the variety of synonyms and antonyms at their disposal. Remind students that dictionaries and thesauri contain synonyms and antonyms of words.

Word-O

This activity, a form of bingo, is designed to provide students with additional practice deriving word meaning from context and working with synonyms and antonyms. Prepare cardboard "word-o" cards (one for each student) with three-by-three grids on them. In each square of the grid write a word with which students should be familiar. Most of the words should be ones for which there are more than one synonym and antonym. No two cards should be identical. You can vary the cards by changing certain words or varying a word's location in the grid. A word-o card could resemble the following example:

W O R D - O		
gentle	broken	draw
fearful	old	rough
angry	happy	female

You will also need about 15 chips for each card. These chips can be made of cardboard and should be numbered from 1 to 15. The cards can be used in various ways. You can use them to play a simple synonym game. Call out a word and instruct students to cover the square that contains a synonym of the word. For the first word you call out, students should use the chip numbered "one" if they have a synonym to cover. They should use the chip numbered "two" for the second word called out, and so on. One word is called out each "round." Students call out "WORD-O" when they have covered a column, row, diagonal, or the four corners. If no student has won by the time 15 rounds (the number of numbered chips) have gone by, then the person with the most squares covered is the winner.

To check a winner, have the student call out, for each covered square, the location of the square, the covered word, and the number of the chip covering the word. The last step is important. For example, students cannot receive credit for covering the word "happy" in round 2 (when the word called out was "mournful") if they should have covered the word in round 7 (when "joyous" was called out).

The game proceeds in an analogous way if you ask students to cover antonyms instead of synonyms.

Another version of the game utilizes all contextual-analysis skills, including antonyms and synonyms. A round consists of calling out a nonsense word and then using this nonsense word in a sentence or short paragraph. Students deduce the meaning of the nonsense word from context and then cover the word that expresses the nonsense word's meaning. For example, you might say the following:

The word is <u>talyuwac</u>.

> Pam barely understands the language of Tolulu well enough to fill out her application form. She obviously wasn't a talyuwart (which she knew meant "male"). Therefore, she checked the other category of <u>talyuwac</u>.

In this instance, a student should cover the square containing the word "female."

SKILL AREA: DETAIL

The skill area of detail includes two objectives. The first requires students to identify a specific detail presented in a reading selection. The second requires students to answer a question based on the sequence of events presented in a reading selection.

Objective 3: Identify specific details.

This objective requires students to identify the specific detail that answers a question about a reading selection.

Sample Item

Read the following passage. Then answer the question.

> Every summer, thousands of white whales go on vacation. These whales live in the area around the North Pole. A thick layer of fat keeps them warm in the extremely cold water. During the winter, they move around in large, open parts of the Arctic Sea. When summer arrives, each group of whales goes to its favorite vacation spot. The places where rivers meet the sea are popular. The water temperature there is warmer than it is farther out in the ocean.
>
> The whales have their babies in these warm waters. The babies don't have very much fat under their skin when they are born. The warmer water helps them to stay alive. The babies are also safer in these protected areas than out at sea. Fast killer whales prey on the slow, fat white whales out at sea. The killer whales, however, rarely enter the white whales' summer areas.
>
> The white whales also molt during their vacation. They rub themselves on the bottom of the river. They splash in the shallow water, playing and making whale sounds together. Sometimes they roll around on pebble beaches, but this can be dangerous. Three whales were once stranded on a beach because the water had become too shallow. The trapped whales screamed and splashed because they were terrified. Without help, they probably would have died. Some people kept the whales' skin and eyes wet until the high tide came. Then the whales swam back to the deeper water. There, the other whales greeted them happily.
>
> When summer vacation is over, the whales' dirty skin has become clean and white. They look shiny and beautiful as they return to their winter world.

What keeps the adult white whales warm?

A. moving quickly

B. a layer of fat

C. rubbing on the river bottom

D. warm blood

Test Questions

1. A test item will present a reading selection followed by a question that asks about a detail in the selection. The question will ask "who," "what," "when," "where," "how many," or "how much."

2. The reading selection will be used to test other objectives in addition to this one. That is, reading selections will be followed by test questions measuring different objectives.

Answer Choices

1. The correct answer choice will be a specific detail from the selection that accurately answers the question.

2. Incorrect answer choices will be either of the following types:

   a. Incorrect Detail: A detail that is contained in the reading selection but does not answer the question.

   b. Irrelevant Detail: A detail that is not contained in the reading selection that appears to answer the question.

Answer Analysis for Sample Item

1. Answer choice A is an irrelevant detail because "moving quickly" is not found in the reading selection.

2. Answer choice B is the correct detail because the third sentence of the first paragraph states that "a thick layer of fat keeps them warm."

3. Answer choice C is an incorrect detail. Although the selection does state that whales rub themselves on the bottom of the river, it does not say that they do it to keep warm.

4. Answer choice D is an irrelevant detail because "warm blood" is not mentioned in the selection.

Instructional Emphases

Students need to develop an awareness of specific pieces of information that appear in a reading passage. Careful reading involves paying attention to details. This skill is important not only when students must answer questions at the end of a textbook chapter, but also when a student is reading a book for pleasure. Failure to remember a certain detail mentioned early in a story can lead to confusion in following the plot or in understanding a character's motivation for a particular action or attitude.

Careful attention to details is also important in reading situations that arise in our daily lives. When reading materials such as game instructions, recipes, directions for operating or making something, or instructions concerning what to do in an emergency, a lack of attention to specific details can result in frustrating or harmful consequences.

Furthermore, attention to details in a reading selection underlies other comprehension skills. Inferences and main ideas are built from details. Emphasize to your students the importance of paying attention to significant details presented in any reading material.

Tell students that when they are working on TEAMS items they should read the question carefully after reading the selection. Remind students that they need not rely on memory to answer the question. Advise them to reread the question and reread or skim the selection as many times as necessary to be sure that they have found the right answer. A major reason for error in detail items is impatience or carelessness. Your students can avoid unnecessary mistakes by taking their time and by reading carefully.

Possible Instructional Activities

Daily Details

Write one of the detail question words (who, what, when, where, how many, how much) on the chalkboard everyday. Each day, focus on detail questions of the specified nature, not only during reading instruction, but anytime. For example, if "who" is the detail type of the day, ask your students "who" questions based on written or oral materials whenever appropriate. Also encourage your students to be attentive to "who" type details all during the day. At appropriate times, let individual students ask the class "who" questions.

Digging for Details

This activity can be done using either teacher-prepared reading selections or classroom reading materials. It need not be used only during reading instruction. After students have read a reading selection, ask them detail questions about the selection. In addition, ask them to locate the sentence in the selection that tells the answer to each question. Be sure to ask the entire class the question before calling on a student to respond. That way, all students will have to look for the answer. As students become more familiar with the kinds of questions involved, let them make up their own questions to ask the class.

You can use this exercise to help students improve their skimming ability. Point out ways of skimming reading material, such as focusing on important words or concentrating on the opening and/or closing sentences of paragraphs. Ask students to find the sentence that tells the answer to your detail question as quickly as possible. Make the activity a "race" and award points to the first three students who find the correct sentence.

Hats Off to Details

Prepare or locate a reading selection that has many details. On each of six small pieces of paper write one type of detail question (for example, "who," "what," or "how many"). Fold the papers and put them into a hat. Distribute the reading selection and tell students to read it. When they have finished reading, select a student to take a slip of paper out of the hat. That student must make up a question, based on the reading selection, of the type indicated on the slip of paper. For example, if the student selects a paper with "where" on it, that student needs to think of a "where" question about the passage. This student should ask the question aloud and select a student to respond. If the responding student is correct, that student gets to draw a slip of paper from the hat and make up a question. If the responding student is incorrect, the student who initially asked the question should call on another student.

If a student cannot think of a question, select another student to try. Not all of the question types will be appropriate for all passages. For example, a particular passage might not contain any details that would answer a "how many" question. In such cases, allow the first student to select another slip of paper. This activity will also work well when carried out in small groups.

Quite a Query

This activity helps students develop an awareness of specific details in a picture, thus improving their comprehension skills. Find a picture in a magazine and paste it on the left side of a file folder. Label parts of the picture with numbers. Make small pockets on the right side of the folder. On each pocket write one of the following words (or phrases): "who," "what," "when," "where," "how many," or "how much."

On index cards write sentences (one to a card) that describe details in the picture. Underline a key word or phrase in each of the sentences. Number the sentences to correspond with the numbers on the picture. For example,

1. The smoke is coming from the chimney.
2. The cat is quietly sitting on the steps.
3. Joe will go into the house later.
4. The boy is carrying a football.
5. Joe is running briskly.

The students' task is to insert each sentence into the appropriate pocket. For example, in the first sentence, "from the chimney" describes from where the smoke is coming. Thus, that sentence would be placed in the pocket labeled "where." After a student files the prepared sentences in the appropriate places, the student may wish to compose some additional descriptive sentences, underline the key words or phrases, and file the sentences in the appropriate pockets. This activity works well in a classroom learning center, in which students work individually and independently when they finish assigned work early or desire extra practice.

Objective 4: Identify the sequence of events.

This objective requires students to answer a question based on the sequence of events presented in a reading selection.

Sample Item

Read the following passage. Then answer the question.

Every summer, thousands of white whales go on vacation. These whales live in the area around the North Pole. A thick layer of fat keeps them warm in the extremely cold water. During the winter, they move around in large, open parts of the Arctic Sea. When summer arrives, each group of whales goes to its favorite vacation spot. The places where rivers meet the sea are popular. The water temperature there is warmer than it is farther out in the ocean.

The whales have their babies in these warm waters. The babies don't have very much fat under their skin when they are born. The warmer water helps them to stay alive. The babies are also safer in these protected areas than out at sea. Fast killer whales prey on the slow, fat white whales out at sea. The killer whales, however, rarely enter the white whales' summer areas.

The white whales also molt during their vacation. They rub themselves on the bottom of the river. They splash in the shallow water, playing and making whale sounds together. Sometimes they roll around on pebble beaches, but this can be dangerous. Three whales were once stranded on a beach because the water had become too shallow. The trapped whales screamed and splashed because they were terrified. Without help, they probably would have died. Some people kept the whales' skin and eyes wet until the high tide came. Then the whales swam back to the deeper water. There, the other whales greeted them happily.

When summer vacation is over, the whales' dirty skin has become clean and white. They look shiny and beautiful as they return to their winter world.

What happened just after the whales that had been stranded returned to deeper water?

A. The three whales screamed and splashed.

B. The three whales found their babies.

C. The three whales were greeted by other whales.

D. The three whales were helped by some people.

Test Questions

1. A test item will present a reading selection followed by a question based on the sequence of events presented in the selection. For example, the question might ask for an event or step from the selection that occurs first, last, or just before or after a specified event or step.

2. The reading selection will be used to test other objectives in addition to this one. That is, reading selections will be followed by test questions measuring different objectives.

Answer Choices

1. The correct answer choice will be the event or step from the reading selection that accurately answers the question.

2. Incorrect answer choices will be either of the following types:

   a. Incorrect: An event or step from the reading selection that does not answer the question. For example, the answer choice may consist of the second event in a sequence when the question asks for the first event.

   b. Irrelevant: An event or step that is not contained in the reading selection that appears to answer the question.

Answer Analysis for Sample Item

1. Answer choice A is incorrect because it occurred before the whales returned to deeper water.

2. Answer choice B is an irrelevant answer because it is an event that is not referred to in the reading selection. Finding their babies is a plausible event following their return to deeper water, but this is new information not contained in the selection.

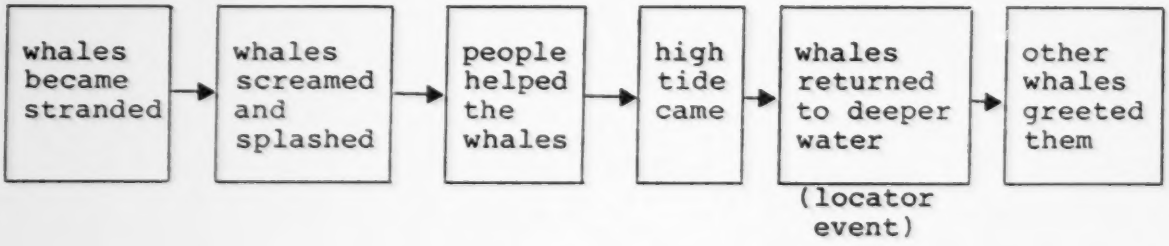
3. Answer choice C is correct because the last two sentences of the third paragraph state that "the whales swam back to the deeper water," and "There, the other whales greeted them happily."

4. Answer choice D is incorrect because it occurred before the whales returned to deeper water.

Instructional Emphases

Attending to the sequence of events or steps in a reading selection is an important skill. Sequence involves the recognition of basic facts and the ability to organize them into a logical order based on time. Sequential relationships can be established in a reading selection either explicitly or implicitly. Explicit sequential relationships are identified by specific cue words such as "first," "second," "next," "then," "finally," and "last." Implicit sequential relationships are inferred from the meaning conveyed in the reading selection. For example, "Mary picked up the puppy. The puppy licked her hand." It is implied that the puppy licked Mary's hand after she picked up the puppy. Encourage your students to take notice of the cue words in a selection and to read carefully so that implicit sequential relationships become clear.

Some students may find it helpful to diagram the events in the sequence presented in a reading selection. Tell your students to consider the event given in the test question as the "locator event." For example, consider the sample test question, "What happened just after the whales that had been stranded returned to deeper water?" The events in the sample item that involve the three whales could be diagrammed as follows:



Once the locator event has been found in the diagram, it becomes easy to find the event that came just before or after it. Although students may not actually draw such a diagram when taking the TEAMS examination, thinking about the sequence of events in this way may prove helpful. A diagram can also be helpful to students when they are asked to find the first or last event in the sequence, although it might be more efficient if students simply reread the beginning or ending parts of a sequence of events to find the first or last events, respectively.

As with the other objective in this skill area, encourage students to read both the selection and the question carefully and then go back to the selection to be sure they have chosen the correct answer.

Possible Instructional Activities

Listing It Out

In this activity, students list in order the events or steps contained in reading selections and then make and answer questions about these sequences. Select or write 10 brief reading selections (representing the range of reading abilities among your students) that each contain a sequence of at least four events or steps. Distribute five of the reading selections to half of the class and the other five reading selections to the other half of the class.

Instruct students to list the events contained in each reading selection they have received. Each event in the sequence should be listed separately, and the events should be placed in the proper order. Students should not list the events on the same sheet of paper that contains the reading selection. You may wish to look over student work before proceeding to the next part of this activity.

Next, students should write four questions for each reading selection. Explain to students that their questions must be patterned after the following models:

What happened first?
" " just before...?
" " just after...?
" " last?

Students should then exchange papers in such a way that students receive selections they have not previously seen. Instruct students to read each selection and answer the sequence questions that follow. Collect and evaluate student work. Both the student who writes and the student who answers the questions should put their names on the sheet of reading selections.

Scrambled Steps

In this activity, students put a scrambled set of events into the proper order. Select or write five to ten reading selections, each of which contains at least four sequential events or steps. Put these reading selections on a handout. (Alternatively, write the selections on the chalkboard, on chart paper, or on a transparency used with an overhead projector.)

Below each selection list four events or steps contained within the selection. The list should not be in the correct order. For example:

> Wilhelm does the same things every night before he goes to bed. First, he puts on his pajamas. Then he brushes his teeth. Next, he washes his face. After kissing his mother goodnight, he hops into bed with a book. He reads exactly 20 pages and then turns off the lights. He is always asleep by 11 p.m.
>
> Wilhelm reads exactly 20 pages.
> Wilhelm brushes his teeth.
> Wilhelm kisses his mother goodnight.
> Wilhelm puts on his pajamas.

Ideally, the list of scrambled events should include few clues as to their correct order so that students will have to examine the reading selection to determine the proper sequence. Distribute to each student a copy of the work sheet containing the selections and scrambled events. Tell students to read the selections and rewrite the scrambled steps in the proper order. When students have finished, discuss their responses.

Easy as 1, 2, 3

In this activity, students write step-by-step directions for simple tasks and answer questions based on these constructed sequences. Tell students to write their own step-by-step directions for a simple task, such as tying shoelaces, brushing teeth, or flying a kite. Each set of directions should contain at least four steps. Students should write two sequence questions about their set of directions. Collect and look over students' work to see if the sequence questions are appropriate and the directions are clear.

Select a set of student-generated directions for a simple task that can be accomplished in the classroom, such as drawing something on the board, sweeping the floor, or tying shoes. Pick one student to be the "reader" and another student to be the "doer." The reader should begin reading the directions, and the doer should try to follow the directions. Composing step-by-step directions for even simple tasks is harder than it seems, and trying to follow some of the directions may yield comical results. After the directions have been followed, the reader should ask the questions. The other students in the class should write down answers to the questions. Discuss the correct answers with students. You may also discuss how the directions for certain tasks can be improved. Repeat this process with other sets of directions.

After the conclusion of this oral activity, you may wish to compile the best unused sets of directions and questions into a work sheet. Distribute the work sheet to students, have them

answer the questions, and discuss the answers. You may wish to repeat this activity at a later time with tasks more closely linked to a content area, such as simple science experiments. Directions for recipes will also work well.

SKILL AREA: INFERENCE

The skill area of inference includes three objectives. The first requires students to identify a reasonable conclusion. The second requires students to distinguish between facts and opinions. The third requires students to identify a cause-and-effect relationship.

Objective 5: Draw logical conclusions.

This objective requires students to draw a reasonable conclusion from information contained in a reading selection.

Sample Item

Read the following passage. Then answer the question.

> Every summer, thousands of white whales go on vacation. These whales live in the area around the North Pole. A thick layer of fat keeps them warm in the extremely cold water. During the winter, they move around in large, open parts of the Arctic Sea. When summer arrives, each group of whales goes to its favorite vacation spot. The places where rivers meet the sea are popular. The water temperature there is warmer than it is farther out in the ocean.
>
> The whales have their babies in these warm waters. The babies don't have very much fat under their skin when they are born. The warmer water helps them to stay alive. The babies are also safer in these protected areas than out at sea. Fast killer whales prey on the slow, fat white whales out at sea. The killer whales, however, rarely enter the white whales' summer areas.
>
> The white whales also molt during their vacation. They rub themselves on the bottom of the river. They splash in the shallow water, playing and making whale sounds together. Sometimes they roll around on pebble beaches, but this can be dangerous. Three whales were once stranded on a beach because the water had become too shallow. The trapped whales screamed and splashed because they were terrified. Without help, they probably would have died. Some people kept the whales' skin and eyes wet until the high tide came. Then the whales swam back to the deeper water. There, the other whales greeted them happily.
>
> When summer vacation is over, the whales' dirty skin has become clean and white. They look shiny and beautiful as they return to their winter world.

Which of these conclusions could you draw from the passage?

A. Killer whales are larger than white whales.

B. The people who helped the stranded whales were scientists from a local university.

C. After summer vacation, white whales return to the Arctic Sea's open areas.

D. Baby white whales are often attacked by killer whales during the summer.

Test Questions

1. A test item will present a reading selection followed by a question or incomplete sentence that requires students to draw a logical conclusion.

2. The reading selection will be used to test other objectives in addition to this one. That is, reading selections will be followed by test questions measuring different objectives.

Answer Choices

1. The correct answer choice will be a reasonable conclusion that can be drawn from information provided in the selection. This conclusion will be accurate, relevant, and supported by information in the selection.

2. Incorrect answer choices will be plausible but incorrect conclusions that are not supported by information in the reading selection.

Answer Analysis for Sample Item

1. Answer choices A, B, and D are unsupported conclusions. The selection contains no evidence to support these answer choices.

2. Answer choice C is a correct conclusion. The last paragraph states that "when summer vacation is over" the whales "return to their winter world." The fourth sentence of the first paragraph states that the whales live "in large, open parts of the Arctic Sea" during the winter. This, therefore, is their "winter world." Putting these two pieces of information together allows the reader to conclude that after summer vacation the whales return to the open areas of the Arctic Sea.

Instructional Emphases

An important reading skill that is central to critical thinking is the ability to draw logical conclusions based on available information. This is an inference skill and, therefore, requires an ability to extract from a reading selection information that is not directly stated. At third grade, students are tested on the inference skill of predicting probable outcomes. At fifth grade and subsequent grade levels, students are tested on the more general skill of drawing logical conclusions.

To draw a conclusion from information presented in a reading selection, students will have to combine bits of information in such a way that the conclusion necessarily follows. The correct conclusion will not be stated directly in the selection; it will be the outcome of combining information from two or more sentences in the passage.

In TEAMS items testing this objective, all information needed to draw the correct conclusion is available in the reading selection. Incorrect answer choices may often be true or apparently true statements, but they will not be supported by information in the reading selection. Thus, in selecting a logical conclusion, students should be able to isolate the information in the passage that supports the conclusion they believe to be correct.

The correct conclusion in these TEAMS items will be based on information in the form of premises presented in the reading selection. There are a variety of ways in which the correct conclusion can be drawn from the premises. Several "logic models" (in which premises lead to a logically necessary conclusion) and examples follow.

A. Premise: If A occurs, then B will occur.
Premise: A occurred.
Conclusion: B will occur.

Example

Premise: If Eunice eats spicy food, she will get an upset stomach.
Premise: Eunice ate spicy food.
Conclusion: Eunice will get an upset stomach.

B. Premise: Either A will occur or B will occur.
Premise: A did not occur.
Conclusion: B will occur.

Example

Premise: Either John pays his taxes, or he will go to jail.
Premise: John did not pay his taxes.
Conclusion: John will go to jail.

C. Premise: If A occurs, then B will occur.
Premise: If B occurs, then C will occur.
Conclusion: If A occurs, then C will occur.

Example

Premise: If Emory presses this button, the lights will go out.
Premise: If the lights go out, then it will be too dark to work.
Conclusion: If Emory presses this button, then it will be too dark to work.

D. Premise: Only if A occurs will B occur.
Premise: A did not occur.
Conclusion: B will not occur.

Example

Premise: Only if all students complete their assignments will Mr. Marke show a movie.
Premise: Not all students completed their assignments.
Conclusion: Mr. Marke will not show a movie.

E. Premise: A < B
Premise: B < C
Conclusion: A < C

Example

Premise: Mac cannot run as fast as Sally.
Premise: Sally cannot run as fast as Lance.
Conclusion: Mac cannot run as fast as Lance.

Comparisons of this kind can be made using a number of different variables or characteristics of the entities involved. For example:

Premise: David swept the floor before he fed the dogs. (A before B)
Premise: He fed the dogs before he ate breakfast. (B before C)
Conclusion: David swept the floor before he ate breakfast. (A before C)

F. Premise: All A are B.
Premise: C is an A.
Conclusion: C is a B.

Example

Premise: All men are mortal.
Premise: Socrates is a man.
Conclusion: Socrates is mortal.

G. Premise: No A are B.
Premise: Some A are C.
Conclusion: Some C are not B.

Example

Premise: No bad actors are talented.
Premise: Some bad actors are popular.
Conclusion: Some popular actors are not talented.

H. Premise: All A are B.
Premise: No C are B.
Conclusion: No C are A.

Example

Premise: Black widow spiders are poisonous.
Premise: None of the spiders in this house is poisonous.
Conclusion: None of the spiders in this house is a black widow spider.

Another type of logical conclusion involves making a generalization from a series of details. An example of this is the following:

Detail: Mary won the race at the city track meet.
Detail: Mary is the best player on the softball team.
Detail: Mary is a skilled dancer.
Detail: Mary's play helped lead the basketball team to a championship.
Conclusion: Mary is good in sports.

The types of logical conclusions described and exemplified above provide a range of arguments from which logical conclusions can be drawn. These types and others will be found in the TEAMS items for this objective. The premises that support the correct conclusion will always appear somewhere in the item's reading selection.

Share these examples and others like them with your students. Impress upon students that the correct conclusion must

have premises from which it follows. When working on test items for this objective, students should first read the selection carefully. Then, for each answer choice, students should attempt to identify information in the selection that supports the answer choice as a correct conclusion. The content in the passage will logically support the validity of only one answer choice. For the other answer choices, there will be either contradictory evidence, no supporting evidence, or insufficient supporting evidence in the selection.

Possible Instructional Activities

Logic Per Day

This activity gradually introduces students to the different types of logic models found in TEAMS items testing this objective. Prepare a simple work sheet for each of the logic models presented in the Instructional Emphases section. Each work sheet should contain a logic model, a complete example of the logic model, and three incomplete examples of the logic model.

For example, one work sheet could contain the following logic model:

Premise: All A are B.
Premise: C is an A.
Conclusion: C is a B.

The complete example could be:

Premise: All honors students are invited to the party.
Premise: Jill is an honors student.
Conclusion: Jill is invited to the party.

The incomplete examples could be:

Premise: Whales are mammals.
Premise: Emo is a whale.

Premise: The students in Mr. May's class are going to the zoo.
Premise: My brother is in Mr. May's class.

Premise: All my brothers play baseball.
Premise: Brian is my brother.

Distribute a work sheet to students and discuss with them both the logic model and the complete example. Then ask students to finish the three incomplete examples. After students have

finished, discuss the examples with students. Use one such work sheet per day.

Review previously introduced logic models periodically in the following way. Write an incomplete example of a logic model on a chart or blackboard. Ask for a volunteer to complete the example (that is, draw a conclusion) and explain it. This can be done at the end of the day or as a preliminary activity in a reading circle.

Which is What?

In this activity, students match logical arguments with the appropriate logic models. Prepare a handout containing each of the logic models explained in the Instructional Emphases section. Number each logic model. In addition to this handout, prepare a page of logical arguments such as the following:

Premise:	If you eat all the cake, you will not feel well.
Premise:	If you don't feel well, you won't enjoy the party.
Conclusion:	If you eat all the cake, you won't enjoy the party.

This example fits the logic model below:

Premise:	If A occurs, then B will occur.
Premise:	If B occurs, then C will occur.
Conclusion:	If A occurs, then C will occur.

Distribute the logic models handout to students and explain each logic model. Then hand out the logic examples. Ask students to match each logical argument with the appropriate logic model by writing the number of the logic model next to the logic example. Collect and evaluate student work. Afterwards, lead a class discussion about how the examples relate to the logic models. This discussion can also be conducted with groups of eight to ten students depending on class size.

Embedded Logic

In this activity, students read brief selections and identify any evidence that supports a given conclusion. Prepare five brief passages (representing a range of reading levels) that contain examples of logical arguments as explained in the Instructional Emphases section. In making these passages, you might find it helpful first to think of an example, then write a passage incorporating it. Each passage should contain the premises of the argument, but not the conclusion. You may find it helpful to group your students for this activity according to reading level.

Following each passage, write two statements. One of these statements should be a correct conclusion to the logical argument embedded in the passage. The other statement should be an incorrect conclusion. For example, a passage might be based on the following example of a logical argument.

Premise: All adult giraffes are tall.
Premise: Tidwell is an adult giraffe.
Conclusion: Tidwell is tall.

A reading selection containing this example might read as follows:

> Giraffes are native animals of Africa. They grow to be very tall. Their long legs and long necks allow them to reach tree branches. Giraffes feed off tree branches other animals are too short to reach. Tidwell is a normal, adult giraffe. Tidwell, however, lives in the local zoo. He is one of the zoo's most popular attractions.

Two possible statements following this passage could be:

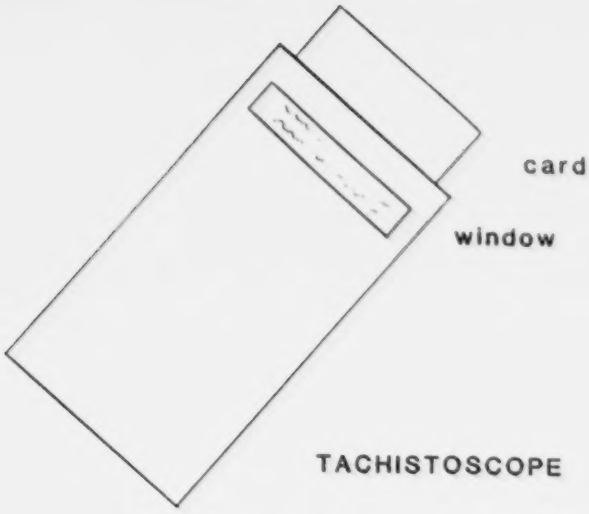
> Tidwell is the only giraffe in the zoo.
>
> Tidwell is very tall.

Distribute copies of the passages. Instruct students to underline, in each passage, any information that supports either statement below the passage. Students should underline evidence supporting the first statement in one color and evidence supporting the second statement in a second color. Students should then circle the statement that is a conclusion best supported by the passage.

You may find it helpful to go through the first example together with students, and then let them work with the remaining four passages on their own. When students finish, discuss the evidence for each conclusion and ask students to recreate the logic model from which the reading passage was constructed.

Tachistoscope Trials

This is a self-paced activity in which students work on their logic skills using a tachistoscope. A tachistoscope, in this case, is a hand-held cardboard pocket with a cut-out window. A long card can be pulled gradually upward out of the pocket. As this happens, a portion of the contents of the card can be read through the window of the pocket. An example is shown on the next page.



TACHISTOSCOPE

You can make one or more tachistoscopes yourself or have students make them as an art project. The pockets should be at least eight inches long and five inches wide. The window should be made near the top of the pocket. The cards to be placed in the tachistoscopes should contain a number of logical arguments, consisting of premises and a conclusion, based on the logic models described in the Instructional Emphases section. Space should be left between the premises and the conclusion of an argument so that both the premises and the conclusion do not show through the window at the same time.

This activity is designed primarily as a self-paced one for students to do as their class time permits. Students insert a card into the tachistoscope and pull the card upward until the premises of the first example can be seen through the window. Students then try to determine the conclusion. Students check their response by pulling the card upward until the actual conclusion appears in the window.

Objective 6: Distinguish between fact and opinion.

This objective requires students to distinguish between statements of fact and statements of opinion.

Sample Item

Read the following passage. Then answer the question.

Every summer, thousands of white whales go on vacation. These whales live in the area around the North Pole. A thick layer of fat keeps them warm in the extremely cold water. During the winter, they move around in large, open parts of the Arctic Sea. When summer arrives, each group of whales goes to its favorite vacation spot. The places where rivers meet the sea are popular. The water temperature there is warmer than it is farther out in the ocean.

The whales have their babies in these warm waters. The babies don't have very much fat under their skin when they are born. The warmer water helps them to stay alive. The babies are also safer in these protected areas than out at sea. Fast killer whales prey on the slow, fat white whales out at sea. The killer whales, however, rarely enter the white whales' summer areas.

The white whales also molt during their vacation. They rub themselves on the bottom of the river. They splash in the shallow water, playing and making whale sounds together. Sometimes they roll around on pebble beaches, but this can be dangerous. Three whales were once stranded on a beach because the water had become too shallow. The trapped whales screamed and splashed because they were terrified. Without help, they probably would have died. Some people kept the whales' skin and eyes wet until the high tide came. Then the whales swam back to the deeper water. There, the other whales greeted them happily.

When summer vacation is over, the whales' dirty skin has become clean and white. They look shiny and beautiful as they return to their winter world.

Which one of the following statements is an opinion?

A. The whales look beautiful when they return to their winter homes.

B. White whales molt during the summer.

C. White whales live in an area around the North Pole.

D. Three white whales once got stuck on a beach.

Test Questions

1. A test item will present a reading selection followed by the question "Which one of the following statements is a fact [an opinion]?"

2. Opinion statements in the selection will be made obvious by words such as "think," "feel," and "believe" or words expressing an opinion such as "pretty," "ugly," or "nice."

3. The reading selection will be used to test other objectives in addition to this one. That is, reading selections will be followed by test questions measuring different objectives.

Answer Choices

1. The correct answer choice will be a fact or an opinion stated in the selection.

2. Incorrect answer choices will be facts (when the question calls for an opinion) or opinions (when the question calls for a fact) stated in the selection. Thus, in any set of answer choices there will be either three facts and one opinion (the correct answer) or three opinions and one fact (the correct answer).

Answer Analysis for Sample Item

1. Answer choice A is correct. The word "beautiful" represents a judgment that cannot be proved or disproved.

2. Answer choices B, C, and D are incorrect because they are factual statements drawn from the reading selection. It is possible to verify objectively each of these three answer choices.

Instructional Emphases

The development of critical thinking skills is an important educational goal. An integral part of critical thinking is the ability to distinguish between statements of fact and statements of opinion. This skill is first tested at this grade level. Without the ability to distinguish fact from opinion, students will have great difficulty evaluating arguments related to the many issues facing them in today's complex world and, as a result, formulating their own well-reasoned opinions.

Students need to be aware that a fact is a piece of information that is known to be true. Facts can be verified because they have objective reality. They can be supported by evidence gathered through direct observation or measurement.

An opinion, on the other hand, is a statement that expresses a belief or a judgment. It is not possible to verify the validity of an opinion. The use of certain words often indicates that a statement expresses an opinion. Words such as "must" and "should" are often used to express belief. Adjectives such as "important," "good," and "interesting" indicate personal judgments. Tell your students that these and other "opinion" words can often help to identify statements of opinion. In addition, emphasize that the key distinction between facts and opinions is that facts can be objectively verified and opinions cannot. Help your students to realize that a statement is not necessarily a fact just because it appears in print or because they agree with it.

Possible Instructional Activities

Let's Get Started

This is a preliminary activity designed to introduce students to the concepts of fact and opinion. Start by writing "fact" and "opinion" on the chalkboard. Ask students if they know what the words mean. If they are unfamiliar with these terms, provide definitions. Then hold up a common object, such as a pencil, and make statements about it, some of which are opinions and others of which are facts. For example:

"This pencil is yellow." (fact)

"This pencil is funny-looking." (opinion)

"This is a good pencil." (opinion)

"This pencil is made out of wood." (fact)

Ask students to identify each of your statements as a fact or as an opinion. List the key words from each statement (for example, "yellow" and "good") on the chalkboard under the appropriate heading (fact or opinion).

Pick up another object and ask your students to make both fact and opinion statements about it. As before, keep a list of the key words. To culminate the activity, review the meanings of "fact" and "opinion" and the list of key terms on the chalkboard, particularly the opinion words.

Opinion Word Charts

In the TEAMS items for this objective, all opinion statements will include words that indicate that the statements are opinions. Therefore, if students are familiar with many different "opinion words," they will be likely to master this objective. This activity helps students learn to recognize such words.

Start by reviewing the concepts of fact and opinion. Then discuss the idea of opinion words. Name some opinion words as examples and then ask your students to think of as many as they can. Write valid opinion words on the chalkboard. As students suggest words, have them use each word in a sentence. The generated words can then be alphabetized and put on a large chart. Display the chart in the classroom and use it for other lessons related to this objective.

Tell Me About It

Bring (and/or have students bring) to class a number of interesting or unusual objects. Display the objects in front of the class. Select a student to come to the front. Tell the student to (1) choose an object and (2) state some facts and some opinions about the object. The class has to identify the statements as facts or opinions. Select other students to choose objects and make statements about them.

There are two variations that add interest to this activity. Put an unusual object in a bag so that no one can see the object. The selected student must feel the object and then make both fact and opinion statements about it. Using that student's statements, other students can try to figure out what the object is. A second variation is to show everyone but the selected student the object before putting it in the bag. The other students will enjoy the selected student's attempts to describe the object.

One in Four

Prepare a work sheet containing 10 sets of four statements each. The first five sets should each have three opinions and one fact. The last five sets should each have three facts and one opinion. Pick four students to come to the front of the room and give them each a copy of the work sheet. Each of these students reads aloud a different statement from the first set. The other students vote on which of the four statements is a fact. Students should also discuss what makes the other statements opinions. Ask them to single out words that indicate judgments or beliefs or phrasing that shows a statement could not be proved objectively. Proceed through the other sets of statements in a like manner. In some cases, ask students if they can substitute a word or phrase and convert a fact into an opinion or an opinion into a fact.

Objective 7: Identify cause-and-effect relationships.

This objective requires students to select the cause or effect of a specified event or activity described in a reading selection.

Sample Item

Read the following passage. Then answer the question.

Every summer, thousands of white whales go on vacation. These whales live in the area around the North Pole. A thick layer of fat keeps them warm in the extremely cold water. During the winter, they move around in large, open parts of the Arctic Sea. When summer arrives, each group of whales goes to its favorite vacation spot. The places where rivers meet the sea are popular. The water temperature there is warmer than it is farther out in the ocean.

The whales have their babies in these warm waters. The babies don't have very much fat under their skin when they are born. The warmer water helps them to stay alive. The babies are also safer in these protected areas than out at sea. Fast killer whales prey on the slow, fat white whales out at sea. The killer whales, however, rarely enter the white whales' summer areas.

The white whales also molt during their vacation. They rub themselves on the bottom of the river. They splash in the shallow water, playing and making whale sounds together. Sometimes they roll around on pebble beaches, but this can be dangerous. Three whales were once stranded on a beach because the water had become too shallow. The trapped whales screamed and splashed because they were terrified. Without help, they probably would have died. Some people kept the whales' skin and eyes wet until the high tide came. Then the whales swam back to the deeper water. There, the other whales greeted them happily.

When summer vacation is over, the whales' dirty skin has become clean and white. They look shiny and beautiful as they return to their winter world.

The three whales became stuck on the beach because

A. the water became too shallow

B. the whales had eaten too much

C. they were trying to get away from a killer whale

D. they wanted their babies to be born on the beach

Test Questions

1. A test item will present a reading selection followed by an incomplete sentence that specifies an event or activity in the selection. Following the incomplete sentence will be four possible endings. To select the correct ending, students will have to select the cause or effect of the specified event or activity.

2. The cause-and-effect relationship to be tested will be stated in the reading selection.

3. The reading selection will be used to test other objectives in addition to this one. That is, reading selections will be followed by test questions measuring different objectives.

Answer Choices

1. The correct answer choice will be an accurate statement of the cause or effect of the specified event or activity.

2. Incorrect answer choices will be statements of causes or effects that are plausible but not supported by information in the selection.

Answer Analysis for Sample Item

1. Answer choice A is correct. It accurately describes why the whales became stuck on the beach. This cause-and-effect relationship is stated in the reading selection in the fifth sentence of the third paragraph. This sentence states that "three whales were once stranded on a beach because the water had become too shallow."

2. Answer choices B, C and D are not supported by information in the selection. Although all of them are plausible reasons for whales becoming stranded, the selection does not support any of them as being the actual cause.

Instructional Emphases

An important reading comprehension skill, closely related to the skill of drawing conclusions, is that of determining cause-and-effect relationships. A cause of something can be thought of as why something happened. For example, examine the sentence "The children went inside because it started raining." The cause of the children going inside is that it starting raining. An effect of something is the result or consequence of that something. In the example above, the effect of the rain starting was that the children went inside. As in the example above, causes always precede their effects in time.

Cause-and-effect relationships are often indicated by words and phrases such as "because," "so," "therefore," "consequently," "in order that," "as a result," and sometimes "then," "this," "since," and "for." In the following examples, such words establish clear cause-and-effect connections between two events.

The dog's paw was cut, so he limped.

As a result of a cut on the dog's paw, the dog limped.

The dog's paw was cut; therefore, he limped.

In the fifth grade TEAMS items for this objective, these types of words and phrases will be used to make explicit the cause-and-effect relationship to be tested. Thus, it is important to help students learn how these words are used to identify cause-and-effect relationships.

Encourage your students to read an item's reading selection carefully. After reading the test question and answer choices, they should return to the selection to be sure that they select the correct answer choice, that is, the answer choice supported by information in the selection. Your students should be able to point out the specific part of the reading passage in which they find support for the answer choice they select.

Possible Instructional Activities

Cause-and-Effect Stories

In this activity, students write paragraphs that contain causes and effects they devise for selected events. These paragraphs then become the basis of a practice exercise for extracting cause-and-effect relationships from reading selections.

To prepare for this activity, make a list of events. The items on this list should be things that are familiar to students. Some examples of statements on this list might be:

Hillary did not pass the test.
John won the contest.
Henry did not fall asleep until 3 a.m.
Mary has just caught the flu.

Make enough copies of this list so that each student can have one.

Before handing out the list, ensure that students have a basic understanding of cause and effect by writing a few examples of cause-and-effect relationships on the board. Hand out the previously prepared list. Instruct students to select one event from the list and make up a paragraph that contains the event. The paragraph should contain a possible cause of the event. Tell students that the selected event must happen as a result of the cause they devise. Tell students also to include an effect of the selected event. That is, the paragraph should contain an event that happened as a consequence of the selected event. Encourage students to use words and phrases such as "because" and "as a result" so that their cause-and-effect relationships are directly stated. They should include other information in their paragraphs in addition to the selected event, its cause, and its effect. Work through an example of such a paragraph that you have previously prepared so that students actually see what they need to do before writing their own paragraphs.

Collect and look over the papers. Compile the best paragraphs into a work sheet for students. If necessary, you can compose selections at appropriate levels of difficulty for students who need to work with easier material. In each paragraph underline the central event that had been selected as the core statement of the paragraph. Ask students to write the cause and the effect of the underlined event in each paragraph on the work sheet. Once again, collect and evaluate student work.

The Moment That Counts

This activity not only gives students practical experience in understanding cause-and-effect relationships, but a chance to sharpen their skills in literary analysis. Select a character and a particular moment in a story to analyze in terms of cause and effect. For example, in an adventure story about Mary and Ellen, you might select Ellen as the character and when Ellen saves Mary's life as the moment. Students can work with the same character and event or different characters and events.

Have students analyze cause and effect in the following manner. At the top of a piece of paper each student should write the selected character and moment. Then under a heading labeled "Causes," students should list the major causes or reasons leading up to the moment described. Under a heading labeled "Effects," students should list the important effects of the

selected moment. Work through an example with your students so they will understand how to do this.

Students should consider many aspects of potential cause in their analysis of cause and effect. For example:

What occurrences of good or bad luck led to this moment?

How did the intentions of the selected character lead to this moment?

How did the actions of the selected character lead to this moment?

How did the actions of others lead to this moment?

More than anything else, why did the occurrence of this moment happen and what caused it?

Students should also consider many aspects of effect, such as:

What was the immediate effect of the action of this moment?

How did this moment affect things that happened much later?

How did this moment change the attitude of the selected character?

How did this moment change the attitudes of others toward the selected character?

What was the most important effect of what takes place in the selected moment?

Collect and evaluate student papers and, later, discuss this cause-and-effect analysis in class.

This activity also works well in subject areas such as history or science because there are elements of cause and effect in the subject material of most fields. Through this activity, students become more knowledgeable about the subject area concerned and more able to identify cause-and-effect relationships.

Cause-and-Effect Clues

In this activity, students examine reading selections for clue words that indicate cause-and-effect relationships. To prepare for this activity, select three to five reading selections of different kinds and different reading levels. These reading selections could come from student textbooks or be compiled in a handout from a variety of sources.

Distribute the handout of reading selections to students or provide students with a list of the reading selections that will

be used for the exercise. Explain to students that TEAMS cause-and-effect items require students to respond to a question by finding either the cause or the effect of a specified event. There will be clue words that indicate potential cause-and-effect relationships in the items' reading selections. These clues include words and phrases such as "because," "so," "therefore," "consequently," "in order that," "as a result," and, in some of their uses, "then," "thus," "since," and "for."

Tell students to read the first selection. Then ask them to underline words that indicate potential cause-and-effect relationships. After students have done this, go through these words with students to determine which ones actually indicate cause-and-effect relationships. For each case, determine the cause-and-effect relationship.

SKILL AREA: REFERENCE USAGE

The skill area of reference usage includes two objectives, one dealing with parts of a book and the other with graphic sources. The first objective requires students to select the part of a book that would be used to find a specified piece of information. The second objective calls for students to use a graphic source of information to find requested information.

Objective 8: Identify the parts of a book used to obtain information.

This objective requires students to select the part of a book that would be used to find information specified in a test item.

Sample Item

Choose the part of a book that would be most helpful.

To find out who wrote the book you are reading, look at the book's

A. glossary
B. index
C. table of contents
D. title page

Test Questions

1. A test item will present an incomplete sentence with four possible endings. To complete the sentence correctly, the students will have to identify the part of a book needed to locate a specific piece of information.

2. The specific piece of information that is required will be available in one of the following parts of a book: glossary, index, table of contents, or title page.

Answer Choices

1. Each answer choice will be one of the four book parts listed above.

2. The correct answer choice will be the part of a book that provides the specified information.

3. Incorrect answer choices will be parts of a book that generally do not provide the specified information.

Answer Analysis for Sample Item

1. Answer choices A, B, and C are incorrect. A glossary (answer choice A) is an alphabetized collection of brief definitions of difficult or specialized terms used in a book. Answer choice B is incorrect because an index is an alphabetized list of topics treated in a book. It provides the page numbers where relevant information on each topic can be found. A table of contents (answer choice C) lists in order of appearance, by major sections, the contents of a book and the corresponding page numbers.

2. Answer choice D is correct. A title page of a book contains the name of the book, the name of the author, the publisher's name, and the place and date of publication. It is the most appropriate place to look for the name of the author of a book.

Instructional Emphases

To master this skill students need to understand the purposes of the different parts of a book. Help students locate the different parts of a book with which this test objective is concerned: the glossary, index, table of contents, and title page. Students should have the opportunity to examine these parts in several books because the parts will not always be arranged in the same manner. Students are tested on the use of a table of contents in the third grade. Therefore, many of your students may already be familiar with that book part. The other parts may be relatively unfamiliar and may require more emphasis.

A student should learn both where these four parts are located in a book and how they are used. Exercises that involve properly using these parts of a book will be particularly useful. Although students will not be tested on their ability to use a book part, such exercises will greatly contribute to the students' proficiency at deciding which book part to consult for a given task. Encourage students to look up difficult words in a glossary. Students should also practice looking up words and topics in an index and then turning to the indicated pages. Students should realize that a table of contents lists the main sections or chapters in a work. Students should know that a title page contains basic information about a book such as the title, author, publishing company, and place and date of publication.

Try to integrate the use of book parts into daily classroom activities. For example, instead of saying "Turn to page 46," say "Turn to the story in Chapter Two by William Smith." When students do not know the meaning of a word in their science or social studies book, have them turn to the glossary to find the word's definition. In this way, an understanding of all the book parts can be reinforced in the context of routine classroom activities.

Possible Instructional Activities

Book-Part Report

Divide the class into four groups. Make several books available for students to use, and assign each group to report on one of the four eligible book parts. Do not tell students in advance about the characteristics of each part. By using the sample books, students can discover the purpose and general content of the book part on which they are reporting. Each group is to select a spokesperson to report the findings of the group to the rest of the class. If the students' research proves incomplete, sample books can be used to illustrate additional points.

Silent Partners

Prepare 20 to 30 questions typical of test questions for this objective, that is, questions that ask students to choose the part of a book needed to locate a specified piece of information. Students should not need a text to answer these questions. The questions should require only the selection of a book part as an answer.

Divide the class into teams of four or five students. Because team members will work independently, it is not necessary that they sit together. Each team should be designated by a name or number.

Read 10 of the questions aloud to the class. Every student is to write an answer to each question. Members of a team are not allowed to communicate with each other while answering questions.

After all the questions have been answered, students exchange papers such that they do not receive papers from other members of their team. Before they exchange papers, remind students to put their name and their team's name on their papers.

Read aloud the correct answer to each question and have students correct each other's papers. Discuss questions with which students had difficulty. When you have finished going over the answers, have students indicate the number of correct answers at the top of the paper they have corrected. Collect the papers, verify the scoring, and tally the total score for each team. Announce the scores to students. This activity can be done again with different questions.

Part Questions

To succeed in this activity, students must be familiar with the form and content of TEAMS questions for this objective. For

that reason, you may wish to go over a few sample questions with the class. It may also be helpful to have students examine the parts of several books.

Tell students to write five questions that require the selection of the appropriate book part. Students may refer to a text, but use of the text should not be required to answer a question. Students should also make separate answer keys for the questions they write. After students have written the questions, have them exchange the questions with other students, who then answer the questions they have been given. These answers are then marked as correct or incorrect by the student who wrote the questions. (Answering the questions could also be accomplished in small groups or by the entire class working together.)

Because students are both writing questions and evaluating answers, there may be some disagreement between students regarding what constitutes a proper question and what constitutes a correct answer. Ask students if there are any questions or answers they would like to discuss or challenge. These questions should be brought before the class and discussed.

Magic Numbers

This activity focuses on the use of an index and can be accomplished by students working individually. Students will use an index to find certain "magic numbers." These magic numbers need have no significance other than being the correct answer to the problem posed in this activity.

Distribute a list of terms or topics that can be found in the index of a text that is available to all students, such as a science or social studies book. Tell students to use the index to find the book's first use of each term from the list. For instance, if the first term on the list is "symbol," a student would look up "symbol" in the index to find the first page on which the word is used. The student would then turn to the indicated page and find the first line on which that word is used. The number of that line is the first part of the magic number. Students repeat the procedure with subsequent terms on the list. Thus, the magic number is made up of the series of line numbers in which the listed terms first appear. This activity will help students learn when an index would be the appropriate book part to consult.

Objective 9: Use graphic sources to get information.

This objective requires students to use a graphic source of information to answer a question.

Sample Item

Use this list to answer the question.

The First 10 Presidents of the United States

President	Year Born	Year Died	Years in Office
George Washington	1732	1799	1789-1797
John Adams	1735	1826	1797-1801
Thomas Jefferson	1743	1826	1801-1809
James Madison	1751	1836	1809-1817
James Monroe	1758	1831	1817-1825
John Quincy Adams	1767	1848	1825-1829
Andrew Jackson	1767	1845	1829-1837
Martin Van Buren	1782	1862	1837-1841
William Henry Harrison	1773	1841	1841-1841
John Tyler	1790	1862	1841-1845

During which year were there three different presidents in office?

A. 1829

B. 1837

C. 1841

D. 1845

Test Questions

1. A test item will present one of the following graphic sources of information: diagram, list, map, picture, schedule, or table. (Maps will include both a legend and a directional indicator. The legend will include the map's symbols for things such as airports, rivers, and city parks.)

2. Each graphic source will be followed by at least two questions that require students to locate or infer information from the graphic source. The questions will specify the information to be obtained and will provide any data necessary for finding that information.

3. Mathematical operations will not be required.

Answer Choices

1. The correct answer choice will be the piece of information derived from the graphic source that accurately answers the test question.

2. Incorrect answer choices will be any of the following types:

   a. Adjacent Information: Information from the graphic source that is next to the requested information.

   b. Similar Information: Information from the graphic source that is similar in meaning or appearance to the requested information.

   c. Incorrect Information: Information from the graphic source that does not answer the question.

Answer Analysis for Sample Item

1. Answer choice A is incorrect. According to the table, only Adams and Jackson were president during 1929.

2. Answer choice B is information from the graph that is adjacent to the correct answer.

3. Answer choice C, 1841, is correct. Three presidents, Van Buren, Harrison, and Tyler, held office during 1841.

4. Answer choice D is also incorrect because it is adjacent to the correct information.

Instructional Emphases

This TEAMS objective assesses students' ability to use a graphic source of information properly. Both in their studies and outside of school, students need to be able to extract specific information from graphic displays. This involves skills such as alphabetizing, reading rows and columns in tables, and interpreting diagrams.

On the third grade TEAMS examination, the only reference source on which students are tested is the table of contents. At the fifth grade level, students are responsible for answering test items dealing with diagrams, lists, maps, pictures, schedules, and tables. Some of these may be well understood by your students already, while others may be relatively unfamiliar. Try to provide practice in the use of each type of eligible graphic display. Certain graphic sources (for example, a list) will take little time. Others, such as tables or maps, may require a substantial amount of explanation and practice.

More than one of each type of graphic source should be available to students so that they can see that there are different types of maps, diagrams, schedules, etc. Indicate to students that graphic sources are useful in many subjects. There is typically a wealth of graphic-source material in class texts. Such graphic sources can be described and explained in the context of content-area instruction to reinforce students' graphic-source skills. Remind students that graphic sources illustrate what the author has written by providing information in "picture" form.

When preparing your students for this objective, inform them that the ability to read a graphic source involves two key skills: understanding presented information and figuring out information that is not directly presented. The first step in reading a graphic source is to determine what information it contains. Students must understand the layout and purpose of the graphic source. Draw students' attention to the title of the graphic source, the column and row headings, the values that are being presented, and the meanings of symbols.

Once students grasp the information presented in a graphic source, they are prepared to answer questions such as the ones they will encounter in TEAMS items. The easier questions will require students to extract information directly from the graphic source. For example, a direct question concerning the sample table below would be "How many horses were sold in Greenacre in May?"

Horse Sales

Town	April	May	June
Cacto Alto	17	15	32
Greenacre	5	11	18

More difficult questions will also depend on information presented in the graphic source, but may require that students compare information. An example would be "During which month were the most horses sold in Cacto Alto?" The answer to this question requires more than locating a single piece of information. To answer this question, several pieces of information must be found and evaluated.

When providing sample questions for students, ask questions whose answers are stated directly in the graphic source before asking questions whose answers require coalescing information from the display. Use simple displays before moving on to more complex ones. Through explanations, examples, and direct ques-

tions, you can enhance students' ability to use and understand graphic sources of information.

Possible Instructional Activities

Consider the Source

Compile a sample of each of the six types of graphic sources covered by this objective. Prepare two handouts based on each of these samples. The first sheet for each sample should contain a "skeleton" of the sample--that is, all the data should be left out, leaving only titles and headings. For example, a skeletal version of the table presented in the sample item would contain only the title and the column headings; all the dates and the presidents' names would be omitted. (Alternatively, you may wish to leave in the presidents' names and omit only the years.) This first sheet should also contain a list of two to four questions of the type that might appear in fifth grade TEAMS items for this objective. The second sheet should present the completed graphic source with all data included.

Distribute copies of the first sheet to students, who are to consider the skeletal graphic source and read the questions that follow it. Discuss with students where they would be likely to find the information to answer the question. For example, given a skeletal version of the list in the sample item and the same question, students should recognize that the information they need to answer the question would be found in the column labeled "years in office."

After reviewing each question for the skeletal version, distribute the handout that contains the complete graphic source. Have students locate the information that answers the questions. Discuss their answers.

Although this activity lends itself well to graphic sources such as lists, schedules, and tables, it may be more challenging to use more pictorial sources such as maps, diagrams, and pictures. It is still possible, however, to omit certain kinds of information from examples of these sources. In a map, for example, omitted information can include the meaning of symbols in the legend and the directional indicator. If the question was "In what direction should you go to get from the airport to the hospital?" students should know that they would need to refer to the legend and the directional indicator.

Reference Teamwork

Divide the class into teams of four or five students. Each team will create a graphic source and, from it, attempt to derive challenging questions for the rest of the class to answer. Provide each team with an example of one of the graphic sources

covered by this fifth grade TEAMS objective. These examples may appear in students' textbooks or be copied from other sources. In addition, assign the team a topic or a list of three topics from which to choose one. Based on the topic, team members are to create a graphic display of the same type as the example they have been given. For instance, a team whose example is a bus schedule and whose assigned topic is "space shuttles to planets in the year 2200" would create an imaginary space shuttle schedule (using real or imaginary planet names). Students need not conduct research to complete their graphic displays; the displays need only be clear, neat, and internally consistent. If time permits, however, graphic displays can be based on answers to a class survey. Or, graphic displays can represent the results of an experiment or scientific observations. The displays can be drawn on poster boards or on sheets of paper that can be copied and distributed to fellow classmates.

Next, team members are to compose five questions that can be answered by referring to their display (without the need for mathematical computations). Then have each team display (or distribute copies of) its graphic source. Each team should select one person to read the team's questions to the other members of the class. Students are to write their answers on a sheet of paper. After all questions have been presented, the correct answers are read and discussed. Then the other teams, one by one, present their displays and questions.

Map Minds

Because map reading is somewhat more complex than the other graphic-source usage skills, your students may benefit from additional practice in this area. In this activity, students make maps by following directions that you supply. Provide each student with a large (approximately 11" x 14") sheet of paper. First, have students draw a directional indicator on their maps, with north at the top of the indicator. Then read aloud details that students are to put in their maps. For example, some details might be the following:

1. There is a pond in the center of the map.
2. A path circles the pond.
3. A road runs east from the pond.
4. There is a house on the north side of the road.

Finally, tell your students to create a legend for their maps. From the above details, items in the legend would be a pond and a house. This activity can be repeated many times over the course of a year. Details can increase both in quantity and complexity to create many different maps. The maps can be used to generate sample test items for students to answer.